LISTING OF CLAIMS

1.   (Allowed) Apparatus for generating an encrypted data stream from an audio signal, comprising:

an encoder for encoding the audio signal in order to generate a data stream with a predefined data stream syntax as output signal;

an encryptor coupled with the encoder for influencing encoder internal data in a uniquely reversible manner based on a key such that the generated encrypted data stream comprises payload information differing from payload information of a data stream that would be generated by the apparatus without the presence of the encryptor and that the generated encrypted data stream comprises the predefined data stream syntax,

wherein said encoder is an encoder for audio signals, comprising:

an analysis filter bank for converting the audio signal from the time domain into a spectral representation in order to obtain spectral values;

a quantizer for quantizing the spectral values under consideration of a psychoacoustic model; and

an entropy encoder arranged to carry out an entropy encoding of the quantized spectral values via a plurality of predefined code tables wherein each code table for the entropy encoding of quantized spectral values is provided in a frequency band and wherein at least one frequency band comprises two or more quantized spectral values, and

wherein said encryptor is arranged to resort the two or more quantized spectral values in the frequency band comprising two or more quantized spectral values having an associated code table based on the key.

2.   (Allowed) Apparatus according to claim 1, wherein said encryptor is further arranged to resort the two or more quantized spectral values based on the key such that the encoded data stream has the same bit length as a data stream that would be generated by said apparatus without the presence of said encryptor.

3.   (Allowed) Apparatus according to claim 1, wherein the encryptor is arranged in order to resort the two or more quantized values merely so strongly based on the key that the payload information of the encrypted data stream differs only so strongly from the payload information of a data stream that would be generated without the presence of the encryptor that a decoder that does not possess the key provides a decoded output signal based on the encrypted data with a quality that is lower than the quality that the decoder would provide if he possessed the key, wherein however, a minimum quality is ensured.

4.   (Allowed) Apparatus according to claim 1,

in which the quantizer is arranged for generating the spectral values as main information and scale factors as side information each of which is associated to at least one quantized spectral value; and

in which said encryptor is further arranged to influence the scale factors generated by said quantizer based on the key.

5.   (Allowed) Apparatus according to claim 1, wherein said encryptor is arranged to link the quantized spectral values in the frequency band, which includes two or more spectral values with a pseudo random bit sequence generated based on the key as start value via an EXCLUSIVE-OR-link.

6.   (Allowed) Apparatus according to claim 1, wherein merely least significant bits of spectral values are linked with a pseudo random bit sequence.

7.   (Allowed) Apparatus according to claim 1, wherein said quantized spectral values are signed and wherein said encryptor is further arranged to change the signs of quantized spectral values based on the key.

8.   (Allowed) Apparatus according to claim 1, wherein said entropy encoder is arranged such that it comprises at least one code table which is an unsigned code table such that a sign for a code word from the code table is written separately from the code word into the payload information, wherein said encryptor is further arranged to change the sign of at least one quantized spectral value based on the key before said entropy encoding of said quantized spectral values.

9.   (Allowed) Apparatus according to claim 1, wherein at least one code table of the plurality of code tables is a multidimensional code table, wherein a code word represents a plurality of quantized spectral values, wherein said encryptor is arranged to resort groups of quantized spectral values, wherein one group of spectral values has so many quantized spectral values as encoded by a code word of said multidimensional code table.

10.   (Allowed) Apparatus according to claim 1, wherein said encoder has a plurality of sub-blocks connected with a bit stream multiplexer multiplexing the data output from the single sub-blocks according to the predefined data stream syntax in order to obtain the output data of said encoder.

11.   (Previously Presented) Apparatus for generating a second data stream encrypted based on a second key from a first data stream encrypted based on a first key, wherein said first data stream is an audio signal encoded by using an encoder with a predefined data stream syntax, wherein said first data stream is encrypted

such that that two or more quantized spectral values in a frequency band comprising two or more quantized spectral values and having an associated code table have been scrambled based on the first key, wherein after the scrambling an entropy encoding of the quantized spectral values has been carried out via a plurality of predefined code tables, wherein each code table is provided for the entropy encoding of quantized spectral values in a frequency band and wherein at least one frequency band comprises the two or more quantized spectral values, wherein the scrambling comprises resorting the spectral values only within spectral areas having the same codebook associated therewith, comprising:

a partial decoder for reversing part of the encoding such that the scrambled two or more spectral values are present;

a decryptor for decrypting the scrambled two or more spectral values by reversing the scrambling based on the first key, wherein the reversing the scrambling comprises resorting the spectral values only within spectral areas having the same codebook associated therewith;

an encryptor for influencing the sequence of the two or more spectral values of the frequency band that has an associated code table based on the second key, wherein the influencing the sequence comprises resorting the spectral values only within spectral areas having the same codebook associated therewith;

a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the second data stream encrypted based on the second key, wherein the second data stream has the predefined data stream syntax.

12.   (Previously Presented) Apparatus for generating a second data stream encrypted based on a key from a first data stream, wherein said first data stream is an

audio signal encoded using an encoder with a predefined data stream syntax, comprising:

a partial decoder for reversing part of the encoding such that quantized spectral values of the audio signal are present;

an encryptor for scrambling two or more quantized spectral values in a frequency band comprising two or more spectral values based on the first key, wherein one of a plurality of predefined code tables is associated to the frequency band for the entropy encoding, wherein each code table is provided for an entropy encoding of quantized spectral values in a frequency band and wherein at least one frequency band comprises the two or more quantized spectral values, wherein the encryptor is arranged to scramble the quantized spectral values that have the same associated code table, wherein the scrambling comprises resorting the quantized spectral values only within spectral areas having the same codebook associated therewith;

a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the data stream encrypted based on the key, wherein the second data stream has the predefined data stream syntax.

13. (Previously Presented) Apparatus for generating a decrypted second data stream from a first data stream encrypted based on a key, wherein said first data stream is an audio signal with a predefined data stream syntax encoded by using an encoder, wherein said first data stream is encrypted such that at least two or more quantized spectral values in a frequency band have been scrambled based on the first key, wherein a plurality of predefined code tables for an entropy encoding is associated with the frequency band whose quantized spectral values have been scrambled, wherein each code table for the entropy encoding is provided for the entropy encoding of quantized spectral values in a frequency band and wherein at least one frequency band comprises the two or more

quantized spectral values, wherein the scrambling comprises resorting the quantized spectral values only within spectral areas having the same codebook associated therewith, comprising:

a partial decoder for reversing part of the encoding such that the scrambled two or more quantized spectral values are present, wherein the scrambled two or more quantized spectral values belong to a frequency band that has an associated code table;

a decryptor for decrypting the scrambled two or more quantized spectral values by reversing the scrambling based on the key, wherein the reversing the scrambling comprises resorting the quantized spectral values only within spectral areas having the same codebook associated therewith;

a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the second data stream with the predefined data stream syntax.

14. (Original) Apparatus according to claim 11, wherein said partial decoder has a bit stream demultiplexer, wherein said encoder internal data are the output data from the bit stream demultiplexer.

15. (Original) Apparatus according to claim 14, wherein said partial decoder further comprises an entropy decoder following the bit stream demultiplexer, wherein said encoder internal data are the output data from the entropy decoder.

16. (Original) Apparatus according to claim 11, wherein scale factors are influenced apart from the two or more quantized spectral values.

17. (Previously Presented) Apparatus for generating a decrypted audio signal from an encrypted data stream comprising quantized spectral values of an audio

signal being scrambled and afterwards entropy encoded within a frequency band in a uniquely reversible manner, wherein the frequency band is defined that it has an associated code table from a plurality of code tables for the entropy encoding, wherein the encrypted data stream comprises payload information differing from payload information of a non-encrypted data stream and wherein said encrypted data stream comprises a data stream syntax similar to a data stream syntax of a non-encrypted data stream, wherein the scrambling comprises resorting the quantized spectral values only within spectral areas having the same codebook associated therewith, comprising:

a decoder for decoding input data in order to generate decoded output data, wherein the decoder comprises an entropy decoder for reversing the entropy encoding in order to obtain the scrambled quantized spectral values; and

a decryptor for influencing the scrambled spectral values based on a key by reversing the uniquely reversible scrambling which has been carried out in an apparatus for generating an encrypted data stream in order to obtain the decrypted audio and/or video signal, wherein the reversing the scrambing comprises resorting the quantized spectral values only within spectral areas having the same codebook associated therewith.

18.   (Original) Apparatus according to claim 17, wherein said decoder further comprises:

a plurality of functional blocks coupled with a bit stream demultiplexer conducting parts of the data stream to the single blocks according to the predefined data stream syntax.

19.   (Original) Apparatus according to claim 18, wherein said decoder further comprises:

a synthesis filter bank in order to convert a spectral representation of the audio signal into a timely representation.

20.   (Allowed) Method for generating an encrypted data stream from an audio signal, comprising:

encoding the audio signal in order to generate a data stream with a predefined data stream syntax as output signal;

encrypting encoder internal data by influencing the same in a uniquely reversible manner based on a key such that the generated encrypted data stream comprises payload information differing from payload information of a data stream that would be generated without the step of encrypting and that the generated encrypted data stream comprises the predefined data stream syntax,

wherein in the step of encoding an audio signal is encoded, comprising:

converting the audio signal from the time domain into a spectral representation in order to obtain spectral values;

quantizing the spectral values under consideration of a psychoacoustic model; and

entropy encoding of the spectral values via a plurality of predefined code tables wherein each code table for the entropy encoding of quantized spectral values is provided in a frequency band and wherein at least one frequency band comprises two or more quantized spectral values, and

wherein said step of encrypting is carried out to scramble the two or more quantized spectral values in the frequency band comprising two or more

quantized spectral values having an associated code table based on the key.

21. (Previously Presented) Method for generating a second data stream encrypted based on a second key from a first data stream encrypted based on a first key, wherein said first data stream is an audio signal with a predefined data stream syntax encoded by using an encoder, wherein said first data stream is encrypted such that two or more quantized spectral values in a frequency band comprising two or more quantized spectral values and having an associated code table have been scrambled based on the first key, wherein after the scrambling an entropy encoding of the quantized spectral values has been carried out via a plurality of predefined code tables, wherein each code table is provided for the entropy encoding of quantized spectral values in a frequency band and wherein at least one frequency band comprises the two or more quantized spectral values, wherein the scrambling comprises resorting the spectral values only within spectral areas having the same codebook associated therewith, comprising:

reversing part of the encoding such that the scrambled two or more spectral values are present;

decrypting the scrambled two or more spectral values by reversing the scrambling based on the first key, wherein the reversing the scrambling comprises resorting the spectral values only within spectral areas having the same codebook associated therewith;

encrypting by influencing the sequence of the two or more spectral values of the frequency band that has an associated code table based on the second key, wherein the influencing the sequence comprises resorting the spectral values only within spectral areas having the same codebook associated therewith;

carrying out the part of the encoding that has been reversed by the step of reversing in order to generate the second data stream encrypted based on the second key, wherein the second data stream has the predefined data stream syntax.

22.   (Previously Presented) Method for generating a second data stream encrypted based on a key from a first data stream, wherein said first data stream is an audio signal with a predefined data stream syntax encoded by using an encoder, comprising:

reversing part of the encoding such that quantized spectral values of the audio signal are present;

encrypting by scrambling two or more quantized spectral values in a frequency band comprising two or more spectral values based on the first key, wherein one of a plurality of predefined code tables is associated to the frequency band for the entropy encoding, wherein each code table is provided for an entropy encoding of quantized spectral values in a frequency band and wherein at least one frequency band comprises the two or more quantized spectral values, wherein the encryptor is arranged to scramble the quantized spectral values that have the same associated code table, wherein the scrambling comprises resorting the quantized spectral values only within spectral areas having the same codebook associated therewith;

carrying out part of the encoding that has been reversed by the partial decoder in order to generate the data stream encrypted based on the key, wherein the second data stream has the predefined data stream syntax.

23.   (Previously Presented) Method for generating a decrypted second data stream from a first data stream encrypted based on a key, wherein said first data stream is an audio signal with a predefined data stream syntax encoded by using an

encoder, wherein said first data stream is encrypted such that at least two or more quantized spectral values in a frequency band have been scrambled based on the first key, wherein a plurality of predefined code tables for an entropy encoding is associated with the frequency band whose quantized spectral values have been scrambled, wherein each code table for the entropy encoding of quantized spectral values is provided in a frequency band and wherein at least one frequency band comprises the two or more quantized spectral values, wherein the scrambling comprises resorting the quantized spectral values only within spectral areas having the same codebook associated therewith, comprising:

reversing part of the encoding such that the scrambled two or more quantized spectral values are present, wherein the scrambled two or more quantized spectral values belong to the frequency band that has an associated code table;

decrypting the scrambled two or more quantized spectral values by reversing the scrambling based on the key, wherein the reversing the scrambling comprises resorting the quantized spectral values only within spectral areas having the same codebook associated therewith;

carrying out part of the encoding that has been reversed by the step of reversing in order to generate the second data stream with the predefined data stream syntax.

24.   (Previously Presented) Method for generating a decrypted audio signal from an encrypted data stream comprising quantized spectral values of an audio signal being scrambled and afterwards entropy encoded within a frequency band in a uniquely reversible manner, wherein the frequency band is defined by having an associated code table from a plurality of code tables for the entropy encoding wherein the encrypted data stream comprises payload data differing from payload data of a non-encrypted data stream and wherein the encrypted data

stream comprises a data stream syntax similar to a data stream syntax of a non-encrypted data stream, wherein the scrambling comprises the spectral values only within spectral areas having the same codebook associated therewith, comprising:

decoding input data in order to generate decoded output data, wherein in the step of decoding an entropy encoding for reversing the entropy encoding is carried out in order to obtain the scrambled quantized spectral values; and

decrypting by influencing the scrambled quantized spectral values based on a key in order to reverse the uniquely reversible scrambling that has been carried out by generating an encrypted data stream in order to obtain the decrypted audio signal, wherein the influencing comprises resorting the spectral values only within spectral areas having the same codebook associated therewith.

25.   (Allowed) Apparatus for generating an encrypted data stream from an audio signal, comprising:

an encoder for encoding the audio signal in order to generate a data stream with a predefined data stream syntax as output signal;

an encryptor coupled with the encoder for influencing encoder internal data of the encoder in a uniquely reversible manner based on a key such that the generated encrypted data stream comprises payload information differing from payload information of a data stream that would be generated by the apparatus without the presence of the encryptor and that the generated encrypted data stream comprises the predefined data stream syntax,

wherein said encoder is an encoder for audio signals, comprising:

an analysis filter bank for converting the audio signal from the time domain into a spectral representation in order to obtain spectral values;

a quantizer for quantizing the spectral values under consideration of a psychoacoustic model; and

an entropy encoder arranged to carry out an entropy encoding of the spectral values in order to obtain a sequence of code words wherein the sequence of code words represents an entropy encoded version of the audio signal, and

wherein said encryptor is arranged to scramble the sequence of code words by changing an order of code words based on the key.

26.   (Allowed) Apparatus according to claim 25, wherein said encryptor is arranged in order to scramble the code words based on the key merely so strongly that the payload information of the encrypted data stream differs only so strongly from the payload information of a data stream that would be generated without the presence of the encryptor that a decoder that does not possess the key provides a decoded output signal based on the encrypted data with a quality that is lower than the quality that the decoder would provide if he possessed the key, wherein however, a minimum quality is ensured.

27.   (Allowed) Apparatus according to claim 25, wherein always two adjacent code words are exchanged with each other.

28.   (Presently Presented) Apparatus for generating a second data stream encrypted based on a second key from a first data stream encrypted based on a first key, wherein said first data stream is an audio signal with a predefined data stream syntax encoded using an encoder, wherein said first data stream is encoded such that a sequence of code words generated by entropy encoding of quantized

spectral values has been scrambled by changing an order of code words based on the first key, comprising:

a partial decoder for reversing part of the encoding such that the scrambled sequence of code words is present;

a decryptor for reversing the scrambling based on the first key, wherein the reversing the scrambling comprises changing the order of code words in the scrambled sequence;

an encryptor for scrambling the sequence of code words based on the second key by changing an order of code words;

a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the second data stream encrypted based on the second key, wherein the second data stream has the predefined data stream syntax.

29.   (Previously Presented) Apparatus for generating a second data stream encrypted based on a key from a first data stream, wherein said first data stream is an audio signal with a predefined data stream syntax encoded by using an encoder, comprising:

a partial decoder for reversing part of the encoding such that a sequence of code words generated by entropy encoding of quantized spectral values is present;

an encryptor for scrambling the sequence of code words based on the key by changing an order of code words;

a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the data stream encrypted based on the key, wherein the second data stream has the predefined data stream syntax.

30.   (Previously Presented) Apparatus for generating a decrypted second data stream from a first data stream encrypted based on a key, wherein said first data stream is an audio signal with a predefined data stream syntax encoded by using an encoder, wherein said first data stream is encrypted such that a sequence of code words generated by entropy encoding of quantized spectral values has been scrambled by changing an order of code words based on the first key, comprising:

a partial decoder for reversing part of the encoding such that the scrambled sequence of code words is present;

a decryptor for reversing the scrambling of the sequence of code words based on the key, wherein the reversing the scrambling comprises changing the order of code words in the scrambled sequence;

a partial encoder for carrying out part of the encoding that has been reversed by the partial decoder in order to generate the second data stream with the predefined data stream syntax.

31.   (Presently Presented) Apparatus for generating a decrypted audio signal from an encrypted data stream comprising a sequence of code words generated by entropy encoding of quantized spectral values scrambled in a uniquely reversible manner by changing an order of the code words wherein the encrypted data stream comprises payload data differing from payload data of a non-encrypted data stream and wherein the encrypted data stream comprises a data stream syntax similar to a data stream syntax of a non-encrypted data stream, comprising:

a decoder for decoding input data in order to generate decoded output data; and

a decryptor for influencing the scrambled sequence of code words based on a key in order to reverse the scrambling that has been carried out in an apparatus for generating an encrypted data stream in order to obtain the decrypted audio signal, wherein the reversing the scrambling comprises changing the order of code words in the scrambled sequence.

32.   (Allowed) Method for generating an encrypted data stream from an audio signal, comprising:

encoding the audio signal in order to generate a data stream with a predefined data stream syntax as output signal;

encrypting by influencing encoder internal data in the step of encoding in a uniquely reversible manner based on a key such that the generated encrypted data stream comprises payload information differing from payload information of a data stream that would be generated by the apparatus without the presence of the encryptor and that the generated encrypted data stream comprises the predefined data stream syntax,

wherein the step of encoding comprises:

converting the audio signal from the time domain into a spectral representation in order to obtain spectral values;

quantizing the spectral values under consideration of a psychoacoustic model; and

entropy encoding the spectral values in order to obtain a sequence of code words wherein the sequence of code words represents an entropy encoded version of the audio signal, and

wherein in said step of encrypting based on the key the sequence of code words is scrambled by changing an order of code words.

33. (Presently Presented) Method for generating a second data stream encrypted based on a second key from a first data stream encrypted based on a first key, wherein said first data stream is an encoded audio signal with a predefined data stream syntax, wherein said first data stream is encrypted such that a sequence of code words generated by entropy encoding quantized spectral values has been scrambled by changing an order of code words based on the first key, comprising:

reversing part of the encoding such that the scrambled sequence of code words is present;

reversing the scrambling based on the first key, wherein the reversing the scrambling comprises changing the order of code words in the scrambled sequence;

encrypting by scrambling the sequence of code words based on the second key, wherein the scrambling comprises changing the order of code words in the sequence;

carrying out part of the encoding that has been reversed in the step of reversing in order to generate the second data stream encrypted based on the second key, wherein the second data stream has the predefined data stream syntax.

34.   (Presently Presented) Method for generating a second data stream encrypted based on a key from a first data stream, wherein said first data stream is an audio signal encoded using an encoder with a predefined data stream syntax, comprising:

reversing part of the encoding such that a sequence of code words generated by entropy encoding of spectral values is present;

encrypting by scrambling the sequence of code words based on the key by changing an order of code words in the sequence;

carrying out part of the encoding that has been reversed by the step of reversing in order to generate the data stream encrypted based on the key, wherein said second data stream has the predefined data stream syntax.

35.   (Presently Presented) Method for generating a decrypted second data stream from a first data stream encrypted based on a key, wherein said first data stream is an encoded audio signal with a predefined data stream syntax, wherein said first data stream is encrypted such that a sequence of code words generated by entropy encoding spectral values has been scrambled based by changing an order of code words on a first key, comprising:

reversing part of the encoding such that the scrambled sequence of code words is present;

decrypting by reversing the scrambling of the scrambled sequence of code words based on the key, wherein the reversing the scrambling comprises changing the order of code words in the scrambled sequence;

carrying out part of the encoding that has been reversed by the step of reversing in order to generate the second data stream with the predefined data stream syntax.

36.   (Presently Presented) Method for generating a decrypted audio signal from an encrypted data stream comprising a sequence of code words generated by entropy encoding quantized spectral values scrambled by changing an order of code words in a uniquely reversible way wherein the encrypted data stream comprises payload data differing from payload data of a non-encrypted data stream and wherein the encrypted data stream comprises a data stream syntax similar to a data stream syntax of a non-encrypted data stream, comprising:

decoding input data in order to generate decoded output data; and

decrypting by influencing the scrambled sequence of code words based on a key for reversing the scrambling that has been carried out in generating an encrypted data stream in order to obtain the decrypted audio signal, wherein the reversing the scrambling comprises changing the order of code words in the scrambled sequence.